

AS B1
a display connected to the controller for comparing a first set of information regarding actual characteristics for the components and a second set of information regarding desired characteristics for the components.

REMARKS

Claims 1-30 were rejected. Specifically, claims 1-4, 11, 12, 18, and 19 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,191,534 to Orr et al. ("Orr et al."). Claims 23 and 24 were rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 5,933,349 to Dalgleish et al. ("Dalgleish et al."). Claims 5 and 21-22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Orr et al. in view of U.S. Patent No. 5,745,390 to Daneshgari ("Daneshgari"). Claims 6-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Orr et al. and Daneshgari in view of U.S. Patent No. 5,889,674 to Burdick et al. ("Burdick et al."). Claims 13-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Orr et al. in view of Burdick et al. Claim 25 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Dalgleish et al. in view of Burdick et al. Finally, claims 26-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dalgleish in view of Daneshgari et al.

Applicant has amended claims 1, 4, 11, 13, and 23 to correct formalities. No new matter has been added. Claims 1-30 are submitted for the Examiner's reconsideration. Withdrawal of the rejections to claims 1-30 in view of the amendments and following remarks is hereby respectfully requested.

1. Rejection of Claims 1-4, 11, 12, 18 and 19 under 35 U.S.C. § 102(b):

Claims 1-4, 11, 12, 18, and 19 were rejected under 35 U.S.C. § 102(b) as being anticipated by Orr et al. Orr et al. describes a control system for managing engineering changes within a manufacturing enterprise. Engineering changes include information about a modification of a product including one or more of its components. The system monitors the status (such as pre-release, release, accept, effective, and closed) of engineering changes as they

are created at a design center and released to, and implemented at, various manufacturing locations.

Independent claim 1 of the present invention, which has been amended to delete the superfluous word “the”, recites a system for managing electronics manufacturing data that includes a data storage device “storing manufacturing standardization data and a plurality of electronic manufacturing data sets” each “corresponding to a local manufacturing process.” The system of claim 1 also includes “a difference editor . . . to display differences between at least one of the electronic manufacturing data sets and the manufacturing standardization data.”

Applicant respectfully submits that Orr et al. fails to describe several features recited in independent claim 1. For example, Orr et al. does not describe a storage device for storing either manufacturing standardization data or for storing electronic manufacturing data sets corresponding to a local manufacturing process. Even if the Examiner were to deem an engineering change to correspond to “manufacturing standardization data,” it is unclear what component of the Orr et al. system corresponds to the “plurality of electronic manufacturing data sets corresponding to a local manufacturing process.”

Moreover, even if components of the Orr et al. could be identified to correspond to the above features, Orr et al. does not describe “a difference editor” as that feature is recited in claim 1. The Examiner points to the text at col. 13, lines 30-40 of Orr et al. that describes the step of tracking the *status* of the engineering change. While Orr et al. may or may not describe a device for comparing the status (i.e. release, accepted, etc.) of one engineering change with the status of another, Orr et al. does not describe a comparison of the actual data itself contained within two engineering changes, nor a device configured to *display* such differences in the data. Thus, Orr et al. does not describe a determination of any differences between an electronic manufacturing data set and the manufacturing standardization data, and in any case, does not describe a difference editor to display such differences.

Accordingly, Applicant respectfully submit that Orr et al. does not describe each of the features of claim 1 and therefore cannot anticipate claim 1. Because claims 2-4 depend from claim 1 and include all of the features of claim 1, those claims are likewise not anticipated by Orr

et al. For at least the above reasons, therefore, Applicant respectfully requests withdrawal of the rejections to claims 1-4 under 35 U.S.C. § 102(b).

Independent claim 11 has been amended to clarify that the comparison is between local and non-local electronics manufacturing data. As amended, claim 11 recites a method for managing of electronics manufacturing data. The method includes the step of “permitting a comparison between local electronics manufacturing data and non-local electronics manufacturing data.” As stated above, while Orr et al. may describe a device for comparing the status of one engineering change with that of another, there is no comparison of the data itself contained within the two engineering changes and therefore no description of “permitting a comparison between local electronics manufacturing data and non-local electronics manufacturing data.” Accordingly Applicant respectfully submits that Orr et al. cannot anticipate claim 11 or claim 12, which depends from claim 12, and requests withdrawal of the rejections to those claims under 35 U.S.C. § 102(b).

Independent claim 18 recites a manufacturing system that includes, among other features, “a display displaying differences between [a] first set of manufacturing data [related to a product manufactured by a first assembly line] and [a] second set of manufacturing data” provided by a server.

As described above, while a comparison may be made in the Orr et al. system between the status of two or more engineering changes, there is no comparison between the data contained in such engineering changes, nor is there a display of such differences. Thus, even if the engineering changes of Orr et al. could be deemed “manufacturing data” as that term is understood in the Applicant’s disclosure -- and Applicant submits that it could not -- there is no description of a display displaying differences between a first set of manufacturing data and a second set of manufacturing data, as required by claim 18. Accordingly, Applicant respectfully submits that claim 18, and claim 19, which depends from claim 18 and includes all of its features, cannot be anticipated by Orr et al., and respectfully requests withdrawal of the rejections to those claims under 35 U.S.C. § 102(b).

2. Rejection of Claims 23 and 24 under 35 U.S.C. § 102(e):

Claims 23 and 24 were rejected under 35 U.S.C. 102(e) as being anticipated by Dagleish et al. Dagleish et al. describes automatic control of placement of components on a printed circuit board by creating a group of components and developing a placement path by which any component in the group may be placed on the board at any point along the path. The described system includes a graphical display for use in laying out (i.e. designing) a printed circuit board.

Independent claim 23 has been amended to clarify that the comparison being made is between actual and desired characteristics for the components. As amended, claim 23 describes a printed circuit board assembly line that includes a display connected to a controller for “comparing a first set of information regarding actual characteristics for the components and a second set of information regarding desired characteristics for the components.” Applicant respectfully submits that at least this feature of claim 23 is missing from Dagleish et al. The Examiner refers to col. 4, lines 1-15, in which a graphical display for use in laying out a circuit board is described with reference to Figs. 3 and 4. That passage also describes a layout file being generated that identifies each of the components of the designed board. While this passage in Dagleish et al. may describe “a set of information regarding desired characteristics for the components” there is no description in this passage, nor anywhere in Dagleish et al. of “a set of information regarding actual characteristics of the components” as recited in claim 23.

Nor is the graphical display described in Dagleish et al. configured to compare such a set of information regarding actual characteristics of the components with a set of information regarding desired characteristics, as required by claim 23. For at least those reasons, therefore, Applicants submit that Dagleish et al. cannot anticipate claim 23 or claim 24, which depends from claim 23, and respectfully requests withdrawal of the rejections to those claims under 35 U.S.C. § 102(e).

3. Rejection of Claims 5, 21, and 22 under 35 U.S.C. §103(a):

Claims 5 and 21-22 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Orr et al. in view of Daneshgari.

Daneshgari describes a use of correlation matrices to reduce the time required in developing complex systems, such as automobile engines, by reducing the time required to test subsystems of such complex systems. Applicant respectfully submits that the subject matter of Daneshgari has nothing to do with manufacturing and manufacturing data, but is solely concerned with design and validation of systems in the pre-production stages.

Independent claim 5 recites a method for managing electronics manufacturing data in which the data comprises first and second sets. The method of claim 5 includes the step of “permitting observation of at least one difference between” a first data structure corresponding to the first set and a second data structures corresponding to the second set.

The portion of Daneshgari referred to by the Examiner as being relevant to this feature (col. 11, lines 61-67) discusses a step of validating predictability of correlation matrices by comparing two sets of test results of subsystems in a complex system. However, neither this passage, nor other passage in Daneshgari, teaches or suggests a way of “permitting observations” to be made of any differences between those test results, and in no way suggests a way of permitting observation of any differences between data structures relating to sets of electronics manufacturing data.

As the Examiner stated, Orr et al. does not describe first and second sets of manufacturing data, and therefore cannot describe a comparison between data structures corresponding to first and second sets. Applicants submit that even if Orr et al. and Daneshgari could be properly combined -- and Applicant submits that they cannot -- the combination of Orr et al. and Daneshgari does not describe, teach or suggest, the feature recited in claim 5 of permitting observation of at least one difference between data structures corresponding to first and second sets of electronics manufacturing data. Applicant accordingly requests withdrawal of the rejection to claim 5 under 35 U.S.C. § 103(a).

Claims 21 and 22 depend from independent claim 18. As discussed above, it is believed that Orr et al. does not describe at least the feature of claim 18 of a display displaying differences between a first set of manufacturing data and a second set of manufacturing data. Applicants respectfully submit that Daneshgari also does not describe a display for displaying differences in

data structures. At most, Daneshgari describes making a comparison between test results of subsystems as part of the development of complex systems. It does not describe displaying those differences, nor any way of determining or displaying differences in two sets of data. For at least these reasons, therefore, Applicant respectfully submits that the combination of Daneshgari and Orr et al. cannot render claims 21 and 22 obvious, and therefore requests withdrawal of the rejections to claims 21 and 22 under 35 U.S.C. § 103(a).

4. Rejection of Claims 6-10 under 35 U.S.C. §103(a):

Claims 6-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Orr et al. and Daneshgari in view of Burdick et al. Burdick et al. describes a method and system for tracking information produced during various processes of semi-conductor (i.e. computer chip) manufacturing.

Claims 6-10 depend from independent claim 5. As discussed in the preceding section, it is believed that the combination of Orr et al. and Daneshgari does not include -- nor teach or suggest -- the step of “permitting observation of at least one difference” between first and second data structures corresponding to two sets of electronics manufacturing data as recited in claim 5. In addition, Applicants respectfully submit that Burdick et al. provides no suggestion for this missing feature that is present in each of dependent claims 6-10. Although Burdick et al. provides for reformatting outside data into the DIS format (col. 5, lines 17-25), it does not permit observations of differences between the data of different formats. For at least that reason, therefore, Applicant respectfully submits that the combination of Orr et al., Daneshgari, and Burdick et al. does not include all of the features of claim 6-10.

Moreover, it is respectfully submitted, that additional features recited in dependent claims 6-10 are also not described, taught, or suggested by the combination. For example, with respect to claim 9, although Burdick et al. describes a graphical user interface (col. 6, lines 48-57), there is no description of permitting observation of differences between the data structures on the basis of that graphical display.

Accordingly, for at least the above reasons, Applicant respectfully requests withdrawal of

the rejections to claims 6-10 under 35 U.S.C. § 130(a).

5. Rejection of Claims 13-17 under 35 U.S.C. §103(a):

Claims 13-17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Orr et al. in view of Burdick et al. Claims 13-17 depend from claim 11. As discussed above, it is believed that Orr et al. merely describes comparing the status of engineering changes but does not describe comparing the data contained in the engineering changes themselves, and therefore cannot describe the feature of “permitting a comparison between local electronics manufacturing data and non-local electronics manufacturing data,” as recited in claim 11 as amended.

Applicant further submits that Burdick et al. also does not describe or suggest this missing feature. Although Burdick et al. provides for reformatting outside data from one database into a format of another, it does not permit a comparison between the data itself contained in the separate databases. For at least that reason, therefore, Applicant respectfully submits that the combination of Orr et al. and Burdick et al. does not include all of the features of claim 13-17.

Moreover, it is respectfully submitted, that additional features recited in dependent claims 13-17 are also not suggested by Burdick et al. The Examiner refers to col. 7, lines 40-62 of Burdick for the feature of “displaying a graphical representation of an electronic component” as recited in claim 13. However, that passage of Burdick et al. describes a result of a search request in which the “genealogy” of a particular semiconductor device is displayed (i.e. a list of process steps that have been historically performed on the chip). It does not describe displaying a graphical representation of the component itself, nor highlighting of any differences, (claim 14) nor displaying lead information (claim 15). Likewise, the passage at col. 3, lines 1-3, referred to by the Examiner -- or any other passage of Burdick et al. -- does not contain any suggestion of information regarding a specification for a length of electronic component leads as required by claims 16 and 17. On the contrary, that passage of Burdick et al. relates to the “lineage” of a semiconductor device. The word “lineage” used in Burdick et al. refers to a list of historical production steps performed during the production of a semiconductor wafer (i.e. past process

steps that have been performed on the chip) and has nothing to do with the leads of an electronic component, or the length of such component leads.

For at least the above reasons, therefore, Applicant respectfully requests withdrawal of the rejections to claims 13-17 under 35 U.S.C. § 103(a).

6. Rejection of Claim 25 under 35 U.S.C. §103(a):

Claim 25 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Dalglish et al. in view of Burdick et al. Claim 25 depends from independent claim 25. As discussed in section 2 above, it is submitted that Dalglish et al. does not describe all of the elements of claim 23. Applicant respectfully submits that Burdick et al. does not suggest the missing feature of “comparing a first set of information regarding actual characteristics for the components and a second set of information regarding desired characteristics for the components” recited in claim 23 (and present in claim 25). Furthermore, Applicant respectfully disagrees with the Examiner’s assertion that Burdick et al. describes a quality control device for examining the components of a printed circuit board. Rather, Burdick et al. refers to a system for generating production history for semiconductor devices, and teaches nothing relevant about the examination of components on a printed circuit board. Nor does Burdick et al. suggest the use of any quality control device “connected to [a] controller and being controlled as a function of [a] first set of information” as recited in claim 25. It is respectfully submitted that the mere mention of the term “quality control” at col. 2, line 65, does not provide sufficient suggestion in view of Dalglish et al. for the missing features of claim 25. Accordingly, Applicant respectfully requests withdrawal of the rejections to claim 25 under 35 U.S.C. § 103(a).

7. Rejection of Claims 26-30 under 35 U.S.C. §103(a):

Claims 26-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Dalglish et al. in view of Daneshgari.

Independent claim 26 recites a method of displaying differences between a first set of electronics manufacturing data and a second set of electronics manufacturing data. The method

of claim 26 includes the steps of “displaying the first set of electronics manufacturing data [which includes a list of components being used in an assembly line] on a section of a display,” and “displaying the second set of electronics manufacturing data on another section of the display.” The method also includes “displaying differences between the first and second set of electronics manufacturing data.”

As discussed above with regard to claim 23, Dalglish et al. describes a graphical display for use in laying out (i.e. designing) a printed circuit board. However, Dalglish et al. does not discuss any type of electronics data that includes “a list of components being used in an assembly line” nor any means of comparing a list of desired components with a list of components being used. On the contrary, the graphical display described in Dalglish et al. is tool for a designer of circuit boards and has no means for comparing the proposed design to any information concerning actual components being used in the manufacturing of the printed circuit board.

In addition, Daneshgari, which concerns the use of correlation matrices to reduce development time of complex systems, does not provide the features missing from Dalglish et al. Daneshgari describes comparing test results of subsystems of complex systems in order to improve confidence level. There is no description in Daneshgari for displaying differences between those test results, nor for the display of any manufacturing data whatsoever. Therefore, for at least the above reasons, and because claims 27 and 28 depend from claim 26 and include all of its features, Applicants respectfully request withdrawal of the rejections to claim 26-28 under 35 U.S.C. § 103(a).

Independent claim 29 recites a method for manufacturing a printed circuit board. The method includes “conveying a printed circuit board, placing at least one component on the printed circuit board using a placement machine as a function of a first set of electronics manufacturing data, transferring the first set of electronics manufacturing data to a display, and comparing the first set of electronics manufacturing data with a second set of electronics manufacturing data.”

For reasons similar to those already described, the combination of Dalglish et al. and Daneshgari do not provide all of the features of claim 29. Although Dalglish et al. relates to

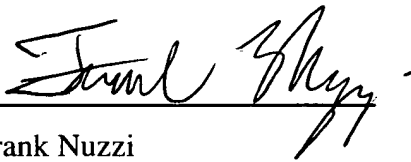
printed circuit boards, it describes an improvement for controlling the placement of components on printed circuit boards. It does not describe any means of comparing first and second sets of electronics manufacturing data using a display or otherwise.

Although Daneshgari describes a comparison being made, the comparison is between test results such as the dynamometer readings during an engine test. There is no suggestion of a transferring such test result data to a display, nor is there any teaching relevant to the comparison of sets of electronics manufacturing data. Therefore, for at least the above reasons, and because claim 30 depends from claim 29 and includes all of its features, Applicant respectfully requests withdrawal of the rejections to claim 29 and 30 under 35 U.S.C. § 103(a).

CONCLUSION

It is respectfully submitted that the application is now in condition for allowance.

Respectfully submitted,



Frank Nuzzi
Reg. No. 42,944

Intellectual Property Counsel
Siemens Corporation
170 Wood Avenue South
Iselin, New Jersey 08830
Tel.: (732) 321-3002



00 P 7777 US 01

Application of: Robert HUBER
Serial No.: 09/716,018
Filed: November 17, 2000

**VERSION OF SPECIFICATION AND CLAIMS AMENDMENTS
WITH MARKINGS TO SHOW CHANGES MADE**

IN THE CLAIMS:

* 1. (Once amended) A system for managing electronics manufacturing data comprising:

a processor;

a data storage device operably connected to the processor, the data storage device storing manufacturing standardization data and a plurality of electronic manufacturing data sets, each of the plurality of electronic manufacturing data sets corresponding to a local manufacturing process; and

a difference editor executable on the processor to display differences between [the] at least one of the electronic manufacturing data sets and the manufacturing standardization data.

2. (Once amended) The system as recited in claim 1 wherein the data storage device includes a central server for providing the manufacturing standardization data, a first control system for providing a first of the plurality of electronic manufacturing data sets, and a second control system for providing a [first] second of the plurality of electronic manufacturing data sets.

11. (Once amended) A method for managing of electronics manufacturing data, in which the data comprises non-local data and local data, comprising the steps of:

permitting non-local electronics manufacturing data to be modified by a first set of persons;

permitting local electronics manufacturing data to be modified by a second set of persons;
permitting a comparison between local electronics manufacturing data and non-local electronics manufacturing data wherein the first and second sets of persons are not identical

13. (Once amended) The method as recited in claim 12 wherein the displaying step includes [displaying step includes] displaying a graphical representation of an electronic component.

23. (Once amended) A printed circuit board assembly line comprising:
at least one placement machine for placing components on a printed circuit board;
a controller connected to the placement machine; and
a display connected to the controller for comparing a first set of information regarding actual characteristics for the components and a second set of information regarding desired characteristics for the components.